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THE DEPOSITOR AS A PRINCIPAL IN PUBLIC DEVELOPMENT BANKS AND CREDIT UNIONS: ILLUSTRATIONS FROM THE DOMINICAN REPUBLIC

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The Depositor as a Principal in Public Development Banks and Credit Unions: Illustrations from the Dominican Republic

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Jeffrey Poyo, Claudio Gonzalez-Vega and Nelson Aguilera-Alfred[1]

I. Introduction

Financial markets in the Dominican Republic are extremely fragmented (Camacho and Gonzalez-Vega, 1992). In Santo Domingo and a few large towns, intense competition among formal intermediaries has led to the introduction of the latest banking technology, while a short distance away, in dozens of smaller towns, not even the most basic financial services are provided to the local population. To satisfy their demand for deposit services rural households must travel long distances and incur significant transaction costs. Access to formal credit is hampered by even greater obstacles, as costly screening, monitoring, and contract enforcement leads banks to ration clients out of their portfolios. As a result, the rural population depends on informal markets, such as moneylenders, pawnshops, SANs

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[1] Jeffrey Poyo, now with the InterAmerican Development Bank, was the long-term resident advisor of the Rural Savings Mobilization Project (1983-86) and the Rural Financial Services Program (1988-92), sponsored by the Agency for International Development and the Central Bank of the Dominican Republic, and implemented by The Ohio State University. Claudio Gonzalez-Vega is Professor of Agricultural Economics and Economics at The Ohio State University and was Principal Investigator, responsible for overall direction of the two projects. A graduate of Ohio State, Nelson Aguilera-Alfred is now Associate Professor of Agricultural Economics at the Catholic University of Chile. The authors are particularly grateful to Adalgisa Adams, Dominican Director of the projects, and to numerous Dominican colleagues who participated in this wonderful enterprise.

(rotating credit schemes), and the financial relationships between farmers and their input suppliers or those who purchase their output.[2]

Despite substantial injections of funds by international donor and lending institutions over the past decades, access of the majority of the rural population to formal financial services has not improved significantly, if at all. Those efforts merely achieved a short-lived expansion in the supply of subsidized credit to a select target population and, in the process, seriously weakened the institutions that served as intermediaries. The poor performance of the organizations that have traditionally served as channels for the credit programs of international donors is a cause of concern.

This paper focuses on the Agricultural Development Bank (ADB) and the rural credit unions (CUs) of the Dominican Republic, both of which have served as important conduits for international credit programs. Between 1984 and 1992, AID financed two projects designed to strengthen rural financial markets in this country.[3] The efforts entailed the provision of specialized technical assistance in support of profound policy reforms within the ADB and about 17 rural credit unions. In addition, technical assistance was provided to the Central Bank, to secure policy reforms that would complement the successful micro-economic transformation of particular intermediaries. The approach used to promote policy changes at the Central Bank was research on basic policy issues, including the observation

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[2] By not immediately withdrawing money owed by the buyer of their crop, farmers obtain the safekeeping function that would otherwise be provided by a formal financial intermediary, although at higher risks and costs.

[3] These projects were the Rural Savings Mobilization Project (1983-1986) and the Rural Financial Services Project (1988-1992).

of lessons from the institutional experiments, while in the case of rural financial intermediaries the strategy was to integrate them into the domestic financial markets via the introduction of voluntary deposit mobilization and the adoption of modern banking practices.

The operational deficiencies of the ADB have usually been dismissed as an example of the drawbacks of public sector institutions. This interpretation is not sufficient, however, to understand the reasons for the similar problems faced by (private) rural credit unions.[4] The CUs have been used by donors as conduits for their lending programs as well, with similar results. This paper illustrates how the theory of agency can be used to explain why different types of institutions confront similar problems. In addition, the importance of the introduction of voluntary deposit mobilization at the ADB and the CUs, in altering traditional agency relationships and in improving performance, is also discussed.

II. Agency Relationships

According to Eggertsson (1990), agency relationships are established when "a principal delegates some rights --for example, user rights over a resource-- to an agent who is bound by a (formal or informal) contract to represent the principal's interest in return for payment of some kind" (p. 40). While the agent is contracted to provide services in representation of the principal, agency costs appear as it faces its own utility maximization problem. Thus, its actions may diverge from those that are in the best interest of the principal. The principal must incorporate pecuniary and non-pecuniary incentives (bonding costs) and

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[4] For the drawbacks of public development banks, see Bhatt; Cuevas and Graham; Graham and Bourne; Von Pischke; and Von Pischke, Hefferman and Adams. For a discussion of these problems in the credit unions, see Poyo (1986), and Poyo (1989).

monitoring in order to limit the deviations of the agent. In addition, there are losses for the principal as long as decisions taken by the agent diverge from those that would maximize the principal's objective. The sum of these costs are referred to as agency costs (Jensen and Meckling).

Most important for the purposes of applying agency theory to the case of financial intermediaries is the basic definition of a firm proposed by Jensen and Meckling:

> *Contractual relations are the essence of the firm, not only with employees but with suppliers, customers, creditors. The problem of agency costs and monitoring exists for all of these contracts...Viewing the firm as the nexus of a set of contracting relationships among individuals also serves to make it clear that the personalization of the firm implied by asking questions such as "what should be the objective function of the firm"...is seriously misleading. The firm is not an individual* (p. 310).

Viewing the financial intermediary as a legal fiction designed to execute a series of contracting relationships is a useful paradigm. The typical agency problem is discussed in terms of the costs for the owners of the financial institution to induce an appropriate behavior of the managers. In the case of the ADB and the rural credit unions there has been not one set of, but multiple principals. Both the ADB and the CUs have been used as a vehicle through which the Government (GODR) and international organizations have attempted to achieve the objectives of their own programs in the rural areas. In both these types of institutions there are, therefore, not one but several different agency relationships, which may actually enter into conflict with one another.

Moreover, in the typical agency problem, the principal is usually interested in the profitability and financial viability of the organization, while the agent's interests may threaten the performance of the firm. The multiple principals in the ADB and credit union cases are frequently not interested in the viability of the intermediary, as their own external objectives may take precedence over the permanency of the organization. Furthermore, monitoring of the agent's behavior by these multiple principals is not only weak (because they are usually distant, particularly in the case of foreign donors), but is frequently focused on dimensions (e.g., fulfillment of targeting goals) not relevant for financial viability. Problems arise, therefore, not only from the agent's pursuit of its own utility maximization efforts, but from the actions taken by the agent in an effort to fulfill its contractual obligations with alternative principals.

III. Agency Relationships at the Agricultural Development Bank

The ADB is a public sector bank, with a portfolio highly concentrated in rice and agrarian reform loans. With 32 branches and 39 smaller satellite offices, it is the single institution with the widest network of branches in the country. Since its creation in 1945, the only service provided until 1984 was credit. A typical development sector bank, ADB has faced severe operational problems, which have undermined its financial viability. Still, it is the largest formal intermediary lending to the agricultural sector, accounting for 45 percent of the bank's agricultural portfolio. In recent years, virtually all of its funding has come from domestic sources, given a serious image problem with international institutions.

Although it has maintained agency relationships with several donors, the most important one is with the Government.

The ADB acts as an agent for the GODR, providing financial support for its policies in the agricultural sector. The specific programs have varied over time, but their objectives have included support for agrarian reform, income redistribution through subsidized credit programs, production of basic grains in order to achieve self-sufficiency in basic food staples (rice, beans), lower prices for urban consumers, and agricultural diversification. Because of the interest of international donors in credit programs, the ADB has also served as a mechanism through which the GODR can borrow foreign exchange at highly subsidized interest rates, for balance of payments support. The ADB has thus served two important functions as an agent for the GODR: it provides financial support for public policies in the rural economy, and it serves as a conduit to gain access to foreign exchange.

The ADB acts, in addition, as an agent for international institutions and foreign governments. Unlike the agency relationships with the GODR, its contracts with foreign principals are explicit. Because of the requirement that the GODR serve as a guarantor, the ADB has usually received project-generated local currency from the GODR as an equity injection, rather than as a loan, and has not been responsible for repayment of principal or interest.

The contracts with both sets of principals have been extremely paternalistic, inducing the ADB to lend money to high-risk, default-prone clientele. Some of these credit programs are of a fiscal nature, which appropriately belong in a welfare agency rather than a financial institution. Subsidized funds and the fiscal nature of the objectives implicit in the contractual relationships with its principals had completely isolated the ADB from the discipline imposed by competition for funds in the marketplace.

The fiscal nature of these contracts promoted a highly centralized operational structure, lack of accountability, deficient risk management, technological obsolescence, and limited investment in human capital. The ADB's operational structure evolved in response to the incentives implicit in these agency relationships. The financial operations carried out under each one of the separate contracts is executed through a different *plan*, each with its own set of policies, standards, and target groups.

In addition, the ADB's Administrator has his own objective function, which may place his decisions and actions in direct conflict with the objectives of the institution's principals. The top position within ADB is filled by a political appointee, who may have aspirations of his own, thus injecting into the decisions another element completely alien to the main functions of a financial intermediary. Because the Administrator may obtain political capital from the fiscal nature of some of the agency relationships, it may be in his interest to encourage these contracts. Evidently, the administrators of this institution may have quite a varied range of objectives. What is important to understand is how these objectives complement or enter in conflict with the objectives of other principals.

IV. Depositors as Principals

In the early 1980s, the Agency for International Development (AID) asked The Ohio State University (OSU) to design a new credit program for the ADB. The bank was once again requesting external funding, as the decapitalization of the institution had deteriorated its loanable funds base. The OSU team recommended that AID assistance be focused on strengthening the institution, rather than on a new agricultural credit project to deal with the short-term needs of farmers. It was suggested that the new project help the ADB become more self-reliant, through the introduction of deposit mobilization. By exposing the bank to the discipline of market competition, it was hoped that the agency problems associated with the external dependence would be ameliorated. It was recognized that the introduction of deposit mobilization would create tensions and frictions within the ADB, because of the inherent conflict with traditional agency relationships.

After over a year of discussion and preparation, in mid-1984 the ADB offered its clients, on a voluntary basis, access to both passbook savings accounts and time deposits. Ceilings on the interest rates to be paid on deposits had traditionally been set by the Central Bank, and had not been modified significantly to compensate for rising inflation. The ADB was authorized to pay the same rates as the rest of the banks: a maximum of 6 percent per annum on passbook savings accounts and 10 percent on 12-month time deposits. The ADB obtained preferential treatment with regard to reserve requirements, which were set at 10 percent, compared to 30 percent for the commercial banks. In addition, the bank entered the rural market with a slight advantage, as a result of its extensive physical infrastructure.

With the signing of this technical assistance Project, AID significantly altered its contractual relationship with the ADB. Rather than funds for credit, the ADB was to receive technical assistance in order to implement deposit services. Although the introduction of deposit mobilization was to be restricted only to a few branches throughout the life of the project (1983-1987), client pressure and desire on the part of the Administrator to obtain political exposure for the upcoming presidential election led the ADB to quickly offer these services at all branches. In this particular case, the objectives of the Administrator served to promote the expansion of deposit mobilization and helped to break down the opposition this new activity found among most of the employees.

In the first stages of the Project, some branch managers resisted the introduction of deposit services, for several reasons: greater work load on the already taxed branches, increased personal accountability for the funds, pessimism with regard to the ability to mobilize savings from the rural population, and belief in the inability of farmers to pay the higher interest rates on loans that would be required if savings were to be mobilized at competitive rates. Once the demand for this service among the rural population became evident, however, branch managers became the most fervent supporters. They were confronted on a daily basis by borrowers frustrated by the ADB's inability to disburse approved loans in a timely fashion, and deposit mobilization empowered them to manage their local cash flow and better respond to their client's needs. Their ability to mobilize local deposits began to introduce some degree of flexibility and independence from the Main Office. Eventually, branch managers became the most vocal advocates of more competitive interest rates and more attractive incentives for depositors.

The greatest resistance came from key department heads in the Main Office who recognized that decentralization undermined their power within the institution. The resulting limited financial independence introduced an important catalyst toward administrative decentralization. The ADB's internal contractual relationships have been significantly altered as a result of this program. An entirely new dimension was introduced into the contractual relationships with the employees, as monetary and non-monetary incentives were adopted in relation to deposit mobilization.

Interest rates paid on deposits remained low because of ceilings imposed by the Central Bank.[5] As a result, in the short run the ADB was able to institute this new service without confronting the dilemma of raising its lending rates of interest. In addition, the ADB was able to introduce this new service without any significant increase in operating costs, because of the underutilization of bank personnel in the Main Office and the computerization of several tasks, with assistance from the projects.

During the initial stages, the ADB imposed severe limitations on the borrowers who could qualify for these funds, as a result of risk aversion on the part of its Board of Directors. For the first time, the Bank was confronted with the responsibility to manage funds which carried no external contractual restrictions on their use, but which would not tolerate borrower delinquency. Eventually, excess liquidity underscored the need for the restrictions to be relaxed. The ADB has developed great proficiency in the administration of these resources, and it has been able to achieve this virtually without delinquency. This important issue will be explored in greater depth below.

In late 1986, following project recommendations, the Central Bank reduced the minimum size of financial certificates, from DR$100,000 to only DR$10,000, and raised the maximum interest rate to 18 percent per annum.[6] This represented a major revision of the regu-

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[5] The main incentive for depositors was the reduction in their transaction costs (Guerrero).

[6] These deposit amounts were equivalent to US$35,700 and US$3,570, respectively.

lated interest rate structure, as the new instrument effectively replaced time deposits, and the ADB was confronted with the need to revise its lending rates, if it were to remain competitive in the market for deposits, by offering the financial certificate. The bank delayed the decision to request authorization from the Central Bank for the use of the financial certificate, because of the expectation that the InterAmerican Development Bank (IDB) would approve its request for a new US$65 million credit program. Finally, confronted with a serious decapitalization and no hope for the subsidized funding from the IDB, towards the end of 1987 the ADB requested and received authorization to use the financial certificate, but not before some of its term depositors had withdrawn their funds (see Table 1). The ADB resolved the interest rate quandary by raising its lending rate minimally and by not offering the maximum rate on the financial certificates. Up until 1990, the ADB's rates on large deposits remained significantly below those offered by the competition.

Table 1
Dominican Republic: Agricultural Development Bank.
Deposit Mobilization.
(December 31 of each year)
(DR $ '000)

Year	Passbook Accounts	Time Deposits	Financial Certificates	Total Savings Mobilization (DR$)	Total Savings Mobilization (US$)
1984	1,169	1,762	0	2,931	951
1985	4,231	2,835	0	7,066	2,437
1986	7,982	2,620	0	10,602	3,453
1987	13,816	5,322	1,840	20,978	4,299
1988	33,175	2,338	7,116	42,629	6,661
1989	42,751	2,885	6,106	51,742	6,211
1990	58,849	2,434	19,567	80,850	6,025
1991	101,500	2,800	186,900	291,200	22,983
1992	131,300	2,400	216,700	350,400	27,656

Source: Banco Agrícola de la República Dominicana, unpublished records.

The ADB has not obtained any significant new funding from foreign donor or credit institutions since 1983, when it signed its last contract with the IDB. The GODR entered into a Stand-by agreement with the IMF in 1985, and as a result its support of the ADB declined. By the end of 1986, the real value of the bank's loan portfolio had fallen to a level below what it had been ten years before. With the new administration that took power at the end of 1986, and until 1988, the ADB received almost DR$500 million from the GODR, once again in the form of equity contributions. By 1989 and 1990, however, the GODR could no longer provide sufficient funding, and with domestic inflation on the rise, the growth in the nominal loan portfolio could not keep pace with rising prices. In real terms, the portfolio declined once again. Not purely by coincidence, 1990 was the year when the ADB embarked on its most aggressive deposit mobilization campaign ever. Interest rates on deposits and loans were raised to the ceilings established by the Central Bank for the first time in the ADB's history. By 1991, all interest rate controls were eliminated and the Bank embarked on a very aggressive policy, paying some of the highest rates in the market.

The ADB has gone through a significant revolution with the introduction of deposit services. As expected, this new activity created important frictions within the institution, not only because of operational requirements which could not be adequately addressed by the existing structure, but also because of implicit ideological differences.[7] With deposit mobilization, a previously unknown principal was introduced into an agency relationship with the

[7] Some of these constraints were an excessive administrative centralization, lack of a management information system, and lack of appropriate employee training.

ADB: the depositing public. For the first time, bank employees became acutely aware of the need for a dynamic pricing policy which responded to rapidly changing market conditions, requiring an effective management information system, which up to this point was non-existent. Although depositors do not participate in the direct supervision of bank operations, the perceived threat of a massive withdrawal of deposits served to constrain attempts to use the ADB as a political instrument.

Deposit mobilization generated important constraints with regard to liquidity management, because of the uncertainty introduced by the unknown demand for cash of passbook depositors. The need for immediate and accurate data transmission from the branches, for purposes of liquidity management and holdings of reserve requirements at the Central Bank, rapidly demonstrated the inadequacies of the existing computer system. The manual computation and posting of interest earned on a monthly basis on more than 160,000 accounts became unmanageable. Although the Project provided for the donation of microcomputers to be installed in all the branches, to promote their complete and decentralized automation, those in charge of the computer center at the Main Office aggressively resisted these changes. Although these first attempts were unsuccessful because of internal resistance, eventually these individuals were removed and since then the ADB has invested large sums of its own resources to modernize its computing facilities.

The most difficult obstacle to overcome, however, was related to the ideological implications of the introduction of deposit mobilization. In the past, agency contracts promoted the paternalistic and fiscal nature of the ADB, emphasizing the need for subsidized interest rates and the implicit acceptance of repayment delinquency.[8] The GODR and foreign governments or donor agencies would absorb the loses implicit in the enormous delinquency problems of these credit programs. The presumed inability to pay a higher rate of interest for agricultural loans on the part of the small farmers was used as one of the main arguments to object to the introduction of this new service. Despite the fact that deposit mobilization reduced their financial margins, and transferred the risks on their shoulders, branch managers became the most ardent supporters of this new service.

Although the introduction of deposit mobilization in the ADB has led to fairly significant changes within the institution, its agency relationship with the GODR continues to dominate its operations, since in relative terms deposits only represent about 10 percent of total assets.[9] This experience has shown, however, that the performance associated with each one of the various lines of credit is a function of the terms and conditions of the relationships between the bank and its principals. Serious delinquency and operational inefficiencies are the result of the implicit incentives and conflicts of each one of the agency relationships the ADB maintains. Significant improvements in institutional performance can only be expected if the different contractual relationships are analyzed and reformed. The ADB was introduced to the disciplines of the market place precisely at the time when its access to subsidized external funding was severely restricted.

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[8] For an analysis of these subsidies, see Aguilera-Alfred and Gonzalez-Vega (1992).

[9] Deposits account, however, for about 40 percent of the annual flow of new loans.

V. Loan Delinquency and Contractual Relationships at the ADB

Loan delinquency is the most serious problem threatening the institutional viability of the ADB. Because of deficient indicators, its true dimensions and trends are impossible to ascertain. The proportion of a portfolio in arrears can seriously misrepresent the problem when the portfolio is growing rapidly and contains a diverse mix of loan maturities. To avoid these difficulties, actual performance is best measured by following the evolution through time of the status of loans disbursed at different points in time.

A multinomial logit model was estimated for a sample of loans disbursed during 1986-89 by the ADB, in an attempt to identify variables that would explain the serious loan delinquency problems faced by this institution (Aguilera-Alfred and Gonzalez-Vega, 1993). Three types of explanatory variables were used: (a) borrower features; (b) loan characteristics; and (c) regulatory instruments. The results confirm the predictions of the analytical paradigm adopted here. The introduction of deposit mobilization apparently did have an influence on the risk-taking behavior of the Bank, resulting in significant reductions in loan delinquency. Among the most important conclusions is that the screening procedures used by branch managers were in fact successful. Loans disbursed to applicants who had been rated (*ex ante*) as good credit risks were less likely to be in default than those loans disbursed to borrowers that had been classified as poor credit risks. One may ask why loans are disbursed to clients the bank has identified as poor credit risks? The reasons for this are to be found in the contractual restrictions (terms and conditions) imposed on the Bank by its external principals (Government and international donor and credit agencies).

An analysis of delinquency by source of funding confirmed that repayment problems are positively correlated to the degree of targeting imposed in their relationship with their external principals. The lowest delinquency rates (average of 2.3 percent over four years) are found on those loans funded from deposits from the public.[10] The next lowest delinquency figures were obtained on a line of credit from USAID which did not place any targeting requirements upon the bank (averaging 8.5 percent).[11] As the targeting requirements imposed by external creditors increase, so does the probability of borrower delinquency. Delinquency on loans funded with government resources averaged 14.3 percent, while for those financed with international donor and lending institutions averaged 32.3 percent.

The restrictions imposed by the principals on the bank's own screening procedures were found to have a strong impact on loan delinquency. *Ceteris paribus*, those clients financed with resources that imposed targeting requirements which limited the ability of the Bank to exercise appropriate risk management were found to have a higher probability of repayment problems. Branch managers were in fact quite successful in identifying good from bad credit risks when no externally imposed conditions restricted their behavior, as in the case of funds obtained directly from the public or from an untied external line of credit.

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[10] These delinquency figures do not reflect actual default rates, which are significantly under 1 percent for the entire period from 1984 - 1992.

[11] Once again, these figures do not reflect actual default rates on these resources.

VI. Open-Membership Rural Credit Unions

The first financial cooperatives in the Dominican Republic were established in the mid-1940s through the efforts of the Catholic Church. In 1949, following the American model, credit unions were affiliated into a national-level federation (FEDOCOOP), an umbrella organization to offer technical assistance, representational, and financial intermediation services. Between 1950 and 1957, the Church sought external funding for its promotional efforts and the numbers of CUs and members rapidly grew. As the Church entered into conflict with the Government, the system was open to direct repression and it began to come apart. Between 1958 and 1961, the numbers of institutions and members declined. The federation was reorganized with help from the Alliance for Progress. It received operating subsidies and grants from various sources during the 1970s. By 1979, 116 credit unions were registered, with a total membership of about 37,000. Only 96 were active, however, and only 25 had full-time managers.

In 1971, several federations formed the Latin American Confederation of Savings and Loan Cooperatives. The creation of COLAC was a strategic decision, in order to improve the access of the individual federations to a much larger pool of subsidized funds from international donors (Rabines et al). These funds would be lent to the national federations, for on-lending to the individual CUs and finally to their members. Since the CUs provided financial services to a segment of society that did not have access to formal credit, this system provided an attractive conduit for the international organizations to transfer large sums of subsidized funds to small agricultural producers.

The vast majority of the CUs had difficulties in collecting the loans disbursed under these programs, undermining the financial viability of both the national federations and COLAC. By the early 1980s, COLAC had accumulated US$26.5 million of total assets and a loan portfolio of US$23 million. Membership in the system had grown from about 850,000 in 1970 to almost 2.3 million. By the end of 1988, the COLAC system had US$720.6 million of total assets and a loan portfolio of US$520.3 million. The 17 federations affiliated claimed a total membership of 3.8 million. The system confronted difficulties with a non-performing loan portfolio, to the point of threatening its existence.

VII. Agency Relationships and Credit Unions

The high transaction costs confronting rural households in their efforts to obtain access to financial services provide a strong motivation for group action in the organization of financial cooperatives. CUs are institutions where the clients are at the same time the owners. Collective action on the part of their members is indispensable for their administration.[12] The achievement of any common goal means that a collective good has been provided (Olson). Since none of the members can be excluded from the potential benefits, there are no incentives to contribute to the common effort. Thus, despite the common objective to obtain financial services, it does not follow that credit union members will voluntarily exert all the effort required. A free rider problem is an important source of problems

[12] Typically, CUs are administered by a board of directors not remunerated for their work. When the CUs are small, there are no full-time employees, and the treasurer manages the funds. Once these institutions grow beyond a critical size, full-time employees become a necessity.

for these organizations, as managers and boards of directors will not be sufficiently disciplined.

An additional source of problems results from the conflicting objectives of its members since, in a self-financing CU, transactions are carried out on both sides of the market (as depositors and borrowers) and the entire supply of savings and demand for loans derives from their membership. In their dual role as owners and clients, their utility is a function not only of the allocation of residual income but, likely of greater importance, of the interest rate structure, transaction costs, collateral requirements, and other dimensions of loan and deposit contracts, that reflect the quality of the financial services received.[13]

Policy decisions in CUs are inherently conflictive, since they carry important income redistribution consequences among the owners (Flannery, Taylor). The utility maximization problem cannot be represented by a single objective function since, for example, the utility of those who are primarily depositors is positively related to the interest rate paid on deposits, while the borrowers' utility is negatively related to interest rates charged on loans.[14] In addition, policies that maximize the member's short-term utility as clients, may come into conflict with those required for the long-term viability of the institution.

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[13] Considering that CUs have been promoted as non-profit institutions, and that they tend to service individuals without access to other sources of finance, those variables that affect the conditions of the services contracted with the credit union tend to weigh more heavily than the benefits received as claimants of the residual income.

[14] In the past, since the interest rate structure was essentially predetermined by the ideological foundations of the credit union system, the question of raising interest rates to mobilize more resources was anathema.

In conclusion, in addition to the typical agency costs that derive from the separation of ownership and management, the CUs faced problems of free riders and the conflicting objectives of their member/owners as borrowers and as lenders. This would suggest that these mutual organizations would suffer from greater agency problems than the typical corporation. Eggertsson points out that competition in capital markets and in the market for managers contributes to limit the agency problems that result from the separation of ownership and control. Variations in stock prices, in response to poor management, serve as signals that reduce the monitoring costs to owners and thus tend to limit opportunistic behavior on the part of the decisionmakers. Because CUs are isolated from these competitive pressures, the monitoring costs to the members are higher and agency costs greater. A study comparing stock and mutual savings and loan associations provided evidence to confirm that the mutual form of organization suffers from greater agency costs.[15]

Although CUs in the Dominican Republic date back to the 1940s, they are among the weakest in Latin America. Their ideological foundation has been rife with paternalistic philosophy. Their original *raison d'etre* was to combat evil moneylenders, who have traditionally been the only source of credit for the rural population, and to promote the habit of saving. Both ideology and regulation have embodied a clear bias in favor of net borrowers.[16] This bias was reinforced as higher domestic inflation during the 1980s turned interest

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[15] Nicols found that the mutuals had higher cost functions, slower growth rates, and less activity in marketing (Eggertsson).

[16] Dominican cooperative law limits dividend payments on shares to 5 percent per annum, and part of the annual profits are returned to borrowers based on their patronage of the credit union.

rates highly negative in real terms. The potential internal conflict with regard to interest rates did not materialize, however, as it was considered heresy within the particular interpretation of cooperative philosophy to suggest raising rates in order to compensate for the impact of inflation. The members, realizing the loss in real value of their savings, and not being able to obtain the credit services desired, withdrew their investment in the organization, by requesting automatic loans equal to their share balances and then becoming delinquent.

In an effort to stem this decline, service diversification was promoted by local and international cooperative organizations. The CUs requested a reform in their legal charter, in order to become multiservice cooperatives, and proceeded to open small supermarkets, pharmacies, household appliance stores, pig farms, furniture factories, and the like. The failure of the vast majority of these non-financial activities accelerated the demise of the system. These other activities were characterized by markets with a large number of participants and the CUs were forced to compete with sole proprietors, who did not have to overcome all the agency costs that confronted the cooperative ownership structure.

VIII. External Finance and Institutional Incentives

Although the CUs were conceived as complete financial intermediaries, offering both deposit and credit services, the bias in their structure repressed domestic resource mobilization, which in turn severely restricted their growth. A limited number of CUs obtained access, however, to externally subsidized funds, which served to reinforce their ideological bias, while supporting a rapid, though short-lived growth. Increases in membership were obtained as a result of the offer of access to highly subsidized external credit. Those members who joined, did so with the sole intention of gaining access to these loans and, as a result, the CUs became dominated by net borrowers.

As most members were net borrowers, severe moral hazard problems appeared in the administration of the loan portfolio. Net borrowers, whether delinquent or not, do not have a personal interest in participating in any collective action to tighten loan screening, collateral requirements and recovery procedures, since rigorous administrative controls and sanctions for delinquency directly affect their interest as clients. These problems were further fostered by the paternalistic nature of the contracts with foreign creditors (principals). Financial transactions were carried out exclusively between foreign savers and local borrowers. As a result, the tendency to supply less than optimal levels of internal control, marketing, loan evaluation and collection, was further exacerbated by these external credit programs.

The majority of the external funds were disbursed to the members after having passed through three different cooperative institutions, each one with its own set of agency problems: confederation, federation, and credit union. Among the serious costs associated with this integrated structure are those linked to the political nature of its administration. The positions on the board of directors at all levels are determined through democratic election. As a result, there is a tendency for financial and political decisions to become interwoven.[17] Access to subsidized credit provided a very strong inducement for the indivi-

[17] The manager of the Dominican Federation was elected to the Board of Directors of COLAC in 1973, and became President of the Board between 1976 and 1981. It was precisely during his tenure that FEDOCOOP received significant injections of funds as well

dual CUs to place one of their directors on the Board of the Federation. Likewise, the federations had great interest in participating in the Board of the Confederation. These agency costs, combined with high transaction costs of monitoring by the principal (international creditor), resulted in substantial borrower delinquency throughout the entire institutional chain.

The presence of several layers of organizations and a complicated web of implicit and explicit contracts which lie between international lending institutions and credit union members strongly suggest that serious agency problems are at the core of the difficulties confronting these organizations. Given the extent of these agency problems, it is surprising that they have been able to survive at all. Despite these costs, the comparative advantage of CUs with regard to transaction and information costs, and limited effective competition by other financial intermediaries has allowed them to survive so far.[18] The next section describes the introduction of effective policy reforms that created incentives for deposit mobilization. Through these reforms, the CUs were able to reduce (although not eliminate) the agency problems they confronted and to offer more efficient financial services to the rural population.

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as technical assistance from COLAC. Although the very serious loan delinquency problems which led the Federation to bankruptcy were blamed primarily on natural disasters, the lack of any reasonable loan evaluation and portfolio administration at the Federation or credit union level suggests the presence of serious agency problems. The excessive dependence on external finance tends to subvert the democratic process, because of the correlation of political power with financial power.

[18] Furthermore, CUs enjoy tax exemption and implicit subsidies from donor funds as well as exoneration from reserve requirements. The CUs in the project did not receive external funding and were induced to keep liquidity reserves. While deposit mobilization ameliorates these agency problems, it does not solve them entirely.

IX. Deposit Mobilization in Rural Credit Unions

A credit union that is successful at mobilizing voluntary savings deposits, not directly tied to the loan contract, as is the case with respect to share accounts, will attract individuals whose interest in the institution is primarily for depository services. Although the possibility of eventually obtaining a loan may play a part in their decision to join, these members are primarily attracted by other factors, such as the risk-adjusted rate of interest paid on their deposits, the level of transaction costs, security as well as other dimensions of the deposit contract. Their interests are not the same as those of individuals who join primarily to gain access to subsidized credit.

With the participation of net depositors, the financial intermediation by CUs begins to take on characteristics of a zero-sum game, in which the implicit subsidy received by defaulting borrowers is ultimately borne by other members within the organization, as opposed to benevolent external creditors. Those members with sufficient incentives to enter and who perceive the greatest potential loss from high levels of borrower delinquency will have a positive inducement to expend the time and effort to support improved internal controls, reducing the free rider problem.[19]

Given the complicated road map of contractual relationships that link international creditors to the ultimate borrowers, monitoring costs for the international principals are

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[19] Monitoring costs may still be too high compared to expected pay-offs. Members who may suffer value consequences share decision-making power with others who not only do not suffer value consequences but may benefit from the value losses of other members. The problem is compounded by the one-man/one-vote majority rule. Borrowers (with more at stake) may have a comparative advantage in gaining control. Moreover, a large number of today's net savers will be tomorrow's net borrowers. Thus, CUs have constantly switching principals and a large number of them free ride (Chaves, 1993).

prohibitively high. High loan delinquency cannot be resolved simply with greater loan supervision on the part of external principals. Unless the essential elements implicit in the agency relationship are addressed, greater credit restrictions will succeed only in rationing credit away from those groups within the rural population for whom these programs are designed. The contractual relationships must be revised, in order to include incentives and sanctions so that opportunistic behavior on the part of agents may be mitigated.

When the development and growth of the credit union is based on local deposit mobilization, the organization is introduced to domestic competition. According to Eggertsson, "redeemable residual claims are a relatively low-cost mechanism for diffuse control, making a mutual a viable organization. The withdrawal of resources by residual claimants is a form of partial take-over or liquidation by the claimants" (p. 186). The threat of withdrawal of deposits as a result of the lack of confidence in the management of the credit union serves to constrain its behavior and ameliorate the agency problems discussed.[20] The board of directors as well as the managers of these institutions are also cognizant that they are administering the savings of their friends and neighbors. In the smaller towns this has proven to be an important constraint on their actions.

Between 1984 and 1987, four Dominican credit unions decided to participate in a pilot project designed to demonstrate the feasibility of improving the financial viability and operational efficiency of these institutions based upon local deposit mobilization. Between

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[20] Although shares can be withdrawn as well, CUs have typically required that the member provide a written request to the board of directors. This provides a false sense of security on the stability of these funds since (because of the high transaction costs involved), the members would rather request an automatic loan in the amount of their shares and not repay this obligation.

1988 and 1992, USAID financed a follow-on project in which nine more institutions were incorporated. The primary objective was to expand rural financial services through these CUs, because of their lower operational costs and advantages with regard to information.

The CUs were provided with specialized assistance in the transfer of basic "banking" technology. The major areas of assistance included: accounting, financial management, credit evaluation and administration, asset and liability management, marketing pricing policies and analysis of financial markets and economic variables in general. Of the 17 institutions, only two were offering financial services with any appreciable degree of efficiency at the beginning of the project.[21] As a result, their active membership had been precipitously declining between the late 1970s and mid-1980s. To participate in the program, a complete restructuring of their operations was required. By 1985, four CUs began to mobilize deposits from their current base of membership as well as attracting new members, with the introduction of two competitively-priced instruments: passbook savings accounts and time deposits. Both instruments effectively paid higher interest rates than those offered by the regulated banking system.

In almost all cases, full-time staff had to be hired, as only part-time managers were the norm. In addition, limited investments in physical infrastructure were carried out, with a small loan from the project. No external credit resources were provided, however, for on-lending to the membership. All loanable fund had to be obtained through deposit

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[21] Only two of these institutions prepared financial statements on a monthly basis and most did not have a full-time manager, credit officials or accountants. Only one of these institutions managed cash operations from their office. Members were given checks to be cashed at the local bank.

mobilization. The board of directors of these CUs were aware that ultimately their survival depended on their ability to become profitable financial intermediaries, completely integrated into the domestic financial markets. The major thrust behind the reforms was to raise interest rates to market levels, and to widen operational spreads, to cover operating costs and lending risks.[22]

Table 2
Dominican Republic: Rural Credit Unions.
Deposit Mobilization.
(December 31 of each year)

Year	Number of CUs	Total Deposit Mobilization (DR$ '000)	Total Deposit Mobilization (US$ '000)
1984	3	1,766	573
1985	3	2,829	953
1986	3	3,967	1,292
1987	3	6,895	1,413
1988	3	11,728	1,828
1989	3	16,872	2,036
1990	8	28,900	2,140
1991	12	47,800	3,760
1992	15	85,800	6,800

Source: AIRAC, unpublished records.

[22] Despite the fact that nominal interest rates on loans were doubled in some of the CUs, the effective rates in fact remained constant or may have even declined. The reason for this apparent contradiction was that the CUs required share accounts as compensating deposits. The dividends on these accounts are strictly limited, and it was not uncommon to find that the required balance in share accounts amounted to 50 and 67 percent of the loan amount. With deposit mobilization, they were able to reduce these compensating balance requirements.

Deposit mobilization, membership and loans grew rapidly, despite the fact that the CUs had a negative image as a result of their past experience with external credit programs.[23] In addition, virtually all financial performance indicators improved significantly. The level of profitability increased, while borrower delinquency was strictly controlled. The improvement in the quality of financial services is clearly demonstrated by the rapid growth in membership after implementation of the program. Deposit mobilization grew from a base of about DR$1,8 million (US$573,000) at the end of 1984, with four CUs, to DR$85.8 million (US$6.8 million) at the end of 1992, with 15 CUs (Table 2). Throughout this period total membership grew from approximately 2,500 to over 22,000.

Since the CUs were not subject to banking supervision, the project provided the function of inspection and prudential supervision. In addition to the constraints that deposit mobilization has imposed on the actions of the administrators, the project also supplied the non-existent supervisory role, critical for the efficient functioning of financial markets.[24]

The CUs established linkages with the banking system, which could not have developed without the significant institutional and financial reforms and growth experienced of these institutions. They have become large depositors, as they maintain a minimum of a

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[23] It is also important to point out that during the period of implementation of this project (1984-1992) these institutions confronted a highly unstable macroeconomic environment and a profound financial crisis in the domestic financial sector (1988-1992).

[24] There are strong reasons for the supervision of depository institutions, accentuated by agency problems at CUs (Chaves and Gonzalez-Vega, 1992). In this particular case, the depositor-dominated membership found it desirable to delegate this function to the project, which was believed to have sufficient incentives and capacity to perform this function effectively. Unfortunately, USAID/Dominican Republic decided to terminate the project before this function was consolidated in another institution.

20-percent voluntary reserve requirement on deposits mobilized, and some have become borrowers from the banking system. However, although the number of CUs is small, if the network were to continue to flourish, they could come to the attention of international donors, which might then be tempted to use them as a conduit for their social assistance programs and might again introduce serious moral hazard problems into their management. The critical issue to be taken into consideration to avoid this outcome is the level of external funding compared to local deposit mobilization, and the contractual conditions surrounding these loans.

X. Loan Delinquency and Contractual Relationships in CUs

The introduction of deposit mobilization in the rural CUs attracted members whose interest was to gain access to an organization that offered competitive rates of interest on deposits and provided a safe and efficient mechanism for the administration of their liquid reserves. These members introduced a renewed equilibrium into the administrative dynamics of the firm, given their interest in participating in monitoring activities. The threat of massive withdrawal of deposits by disaffected members has served to constrain the behavior of the CU management and Board of Directors.

Traditional delinquency ratios ranged widely among the CUs and throughout different periods of the year. They remained, however, on the average around 10 percent. This figure represents arrears over the entire portfolio, calculated from the first day of delinquency. Most loans are amortized on a monthly basis. Default rates have been in almost all cases estimated at about 3 percent of disbursements.

An in-depth study was carried out of default rates at one credit union confronting what appeared to be more serious delinquency problems. A multinomial logit model was estimated for a sample of loans disbursed by the Santa Lucía CU, over a period of four years (1987-1990), in order to identify those variables that contributed to delinquency problems (Poyo, Aguilera-Alfred and Gonzalez Vega, 1992) The sample represented about 10 percent of the number of loans disbursed and 15.8 percent of total disbursement value. Delinquency, as calculated by the traditional methodology, had reached about 19 percent during 1988. During this period the CU was growing rapidly and channeling greater volumes of credit to the agricultural sector. It was hypothesized that loans for agriculture had a higher probability of delinquency than those for commerce or personal consumption. Likewise, it was hypothesized that the increasing delinquency was attributable to the rapid growth in membership, as the average quality of information on the membership declined as the numbers rose.

The entire supply of loanable funds at the CUs was obtained through deposit mobilization, so the type of analysis carried out in the case of the ADB was not relevant here. However, since these institutions were highly diversified in all sectors of the economy, it was important to isolate the influence of different sectors on delinquency.

The results demonstrated that over the 1987-90 period the default rate was approximately 2.5 percent of the value of disbursements. By the end of 1992, delinquency, as calculated by the traditional method, had returned to levels below 10 percent. Results from the regression analysis rejected the notion that loans for agricultural production exhibited greater delinquency than commercial loans, when compared to loans for consumption, for any of the years in the study. Finally, the results offered evidence that the longer it took to analyze any particular loan, the higher the probability of delinquency. The longer the time required for loan analysis was an indication of the lack of knowledge about a prospective borrower.

XI. Conclusions

This paper has shown that the operational difficulties confronted by both the ADB and the rural CUs can be understood within the paradigm of agency relationships. The importance of this approach is to emphasize that the solution to these problems needs to transcend simple operational reforms and focus primarily on the contractual relationships that these institutions maintain with diverse principals. The agency problems confronted are not only a function of the separation of ownership and control, but of the contradictions among the objectives implicit in each of the different agency relationships.

The contributions of the introduction of deposit mobilization in reducing these agency problems is a function of the incorporation of new principals: the depositors. The threat of immediate withdrawal of funds, placing the institution in financial jeopardy, has proven to be an important restriction not present in the agency relationships with other domestic or international creditors (principals).

The recent experience of the ADB has shown that its operational problems are related to the agency problems that derive from inappropriate institutional incentives inherent in the terms and conditions of its relationships with traditional principals (Central

Government and international donors).[25] Deposit mobilization created a new principal that has promoted the *de facto* financial decentralization, reassigning the distribution of risk and improving operational efficiency in the process. Although questions concerning government interference in the Bank's operations continue to present a problem, deposit mobilization has not only constrained the administrators of the bank but also officials from the Central Government.

The rural CUs were the last institutional link in a long financial chain with very complex agency relationships that separate the international lending and donor agencies from the rural household. Although this structure proved very attractive to international institutions, because of the low transaction costs imposed on them, the difficulty of monitoring, as well as other important agency costs, seriously undermined the financial viability of the entire system.

The weakening of this linkage isolated the CUs from the international subsidized credit flows, thus focusing their attention on the opportunities for local deposit mobilization as a strategy for survival. The introduction of these institutions into market competition on the deposit side served to significantly improve their performance. The CUs continue to enjoy a comparative advantage with regard to servicing rural households, because of their limited operational, transaction, and information costs. However, despite the fact that in many towns these institutions are virtually a monopoly provider, they have been unable in the past to exploit their advantages, due to extremely complex agency problems. The

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[25] Because of these agency relationships, the ADB had failed as a financial intermediary. If the intention of the external principals was a free transfer of resources to particular clientele, this was an excessively costly vehicle for this purpose.

technical assistance that helped to introduce deposit mobilization as their primary source of funding, as well as banking inspection and supervision, has been a critical input in significantly reducing these agency costs. As a result of the associated appropriate incentives, the quality of financial services has risen and the significant growth in membership demonstrates that these institutions are filling an important void in the provision of rural financial services in the Dominican Republic.

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